

This listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of Claims:**

**Claims 1-6 (cancelled)**

**Claim 7 (currently amended)**      ~~The method of claim 5, wherein said cell is labeled by transfecting said cell with a DNA molecule encoding said~~ A method of monitoring at least one cell or tissue in a biological system comprising:

- a) providing said biological system comprising said at least one cell or tissue;
  - b) labeling said at least one cell or tissue with at least one apo metal binding protein;
  - c) providing conditions which permit said at least one apo metal binding protein to emit a signal;
  - d) observing or measuring the signal; and
  - e) monitoring said at least one cell or tissue based on the signal observed or measured;
- wherein the cell is labeled by introducing into said cell a DNA molecule encoding said at least one apo metal binding protein.

**Claims 8-13 (cancelled)**

**Claim 14 (currently amended)**      ~~The method of claim 7, wherein said protein is labeled by preparing a fusion protein with said protein and~~ A method of monitoring at least one cell or tissue in a biological system comprising:

- a) providing said biological system comprising said at least one cell or tissue;
  - b) labeling said at least one cell or tissue with at least one apo metal binding protein;
  - c) providing conditions which permit said at least one apo metal binding protein to emit a signal;
  - d) observing or measuring the signal; and
  - e) monitoring said at least one cell or tissue based on the signal observed or measured;
- wherein the cell is labeled by introducing into said cell a DNA molecule encoding a fusion protein comprising at least one apo metal binding protein.

**Claims 15-16 (cancelled)**

**Claim 17 (currently amended)** ~~The method of claim 15,~~ A method of monitoring at least one cell or tissue in a biological system comprising:

- a) providing said biological system comprising said at least one cell or tissue;
  - b) labeling said at least one cell or tissue with at least one apo metal binding protein;
  - c) providing conditions which permit said at least one apo metal binding protein to emit a signal;
  - d) observing or measuring the signal; and
  - e) monitoring said at least one cell or tissue based on the signal observed or measured;
- wherein said conditions which permit said at least one apo metal binding protein to emit a signal comprise providing at least one metal which binds to said at least one apo metal binding protein; wherein said apo metal binding protein is a blue copper protein chosen from azurin, pseudo-azurin, a plastocyanin, and a phytocyanin.

**Claims 18-35 (canceled)**

**Claim 36 (currently amended)** A method of monitoring at least one target substance in a biological system comprising:

- a) providing said biological system comprising said at least one target substance, wherein said at least one target substance is a cell that is labeled by transfecting said cell with a DNA molecule encoding said at least one apo metal binding protein;
- ~~b) labeling said at least one target substance with at least one apo metal binding protein, wherein said apo metal binding protein is a protein capable of binding itself to said metal;~~
- ~~e)b)~~ providing conditions which permit said at least one apo metal binding protein to emit a signal;
- ~~d)c)~~ observing or measuring the signal; and
- ~~e)d)~~ monitoring said at least one target substance based on the signal observed or measured.

**Claim 37 (currently amended)** The method of claim 36, wherein said ~~protein~~cell is labeled by ~~preparing a fusion protein with said protein and~~ introducing into said cell a DNA molecule encoding a fusion protein which has at least one apo metal binding protein.

**Claim 38 (previously presented)** A method of monitoring at least one target substance in a biological system comprising:

- a) providing said biological system comprising said at least one target substance;
- b) labeling said at least one target substance with at least one apo metal binding protein, wherein said apo metal binding protein is a blue copper protein, and said blue copper protein is chosen from azurin, pseudo-azurin, a plastocyanin, and a phytocyanin;
- c) providing conditions which permit said at least one apo metal binding protein to emit a signal, wherein said conditions which permit said at least one apo metal binding protein to emit a signal comprise providing at least one metal which binds to said at least one apo metal binding protein;
- d) observing or measuring the signal; and
- e) monitoring said at least one target substance based on the signal observed or measured.